



# LABORATORY OF FORENSIC SCIENCE



HERBERT LEON MacDONELL  
DIRECTOR

POST OFFICE BOX 1111  
CORNING, NEW YORK 14830

STATE of NEW YORK )  
COUNTY of STEUBEN ) ss  
TOWN of CORNING )

Herbert Leon MacDonell, being duly sworn, desposes and says:  
I reside on Davis Road in the township of Corning, New York.  
I am Director of the Laboratory of Forensic Science, Professor  
of Criminalistics at Elmira College, Elmira, New York, Visit-  
ing Lecturer at Corning Community College, and a Consulting  
Criminalist. As a forensic scientist I have worked with many  
types of physical evidence including tool marks and firearms.  
A more detailed account of my background is given in the data  
sheet attached to this affidavit.

I have reviewed certain copies of transcripts sent to me by  
Mr. Bernard Fensterwald, Jr., of Washington, D.C. which pur-  
portedly relates to evidence in the Dr. Martin Luther King, Jr.  
case. The following comments are made regarding these copies  
and are directed to the page numbers appearing thereon:

page 69) "...proof would show through expert testimony that  
the markings on this sill were consistant with the  
machine markings as reflected on the barrel of the  
30.06 (sic) rifle which has heretofore been intro-  
duced to you gentlemen."

Comment: This statement really does not offer any  
evidence whatsoever that the marking on the sill  
was made by any one specific weapon. It does not  
suggest any individual characteristics are available  
for comparison and, indeed, I would not expect to  
find any. I do not believe a metal barrel could  
produce sufficient detail in wood to allow a positive  
matching of the two surfaces. While this is often  
true with certain tools, I can not imagine how a  
rifle barrel could leave a characteristic marking in  
so difficult a surface as raw wood. The terminology  
"consistant with" could probably apply to markings  
produced with almost any other rifle or even rods,  
pipe, or tubing. It really says nothing to imply  
a specific weapon was used.

*me Aul*  
*flay*

Buzanne Aul Jeffery  
RY PUBLIC STATE OF NEW YORK  
ALIFIED IN STEUBEN COUNTY  
NO. 51-7078575

mission expires April 22, 1976

AN INDEPENDENT LABORATORY FOR THE EXAMINATION AND EVALUATION OF PHYSICAL EVIDENCE

*Herbert Leon MacDonell*

page 96) "The death slug was identical in all physical characteristics with the five loaded 30.06 (sic) Springfield cartridges found in the bag in front of Canipe's."

Comment: A slug is the projectile portion of a cartridge. No one with any knowledge of firearms and ammunition would have made such an error as is obvious in this statement. No slug could possibly be identical with a complete cartridge. An error like this in a report is inexcusable.

page 96) "That the death slug removed from the body contained land and groove impressions and direction of twist consistent with those that were in the barrel of this rifle."

Comment: The terminology "consistent with" rather than "identical to" reveals only a matching of class characteristics and not individual characteristics. This means that the land and groove impressions, etc. are also consistent with all other rifles having the same class characteristics. I believe there were over one and one-half million .30-06 type weapons produced prior to 1941. It could have been that the death slug was fired in one of these, but from class characteristics it is impossible to determine which one.

page 97) "...microscopic evidence in this dent was consistent in all ways with the same microscopic marks as appear on the barrel of this rifle, 30.06 (sic) rifle."

Comment: As previously stated on the preceeding page, I find this difficult to believe. I would like to examine the evidence as I can not believe wood is capable of retaining an impression of a rifle barrel in sufficient detail to permit a positive identification. Rifle barrels are relatively smooth and the surface and character of wood does not permit the microscopic detail to be reproduced that would be necessary for forming an opinion that one barrel, to the exclusion of all others, had made a specific dent.

One point should be made regarding the dent in the window sill as from all I reviewed it was made by and/or matched to the rifle barrel. It is my opinion that such a matching is not possible, however, I should like to examine the evidence before concluding that unusual circumstances might permit such a match under conditions not made known to me. For example, if the barrel means "front sight group" as well as "barrel" it may be sufficient detail is available for detection of individual characteristics. An examination of the evidence would disclose this immediately.

*Suzanne Aul Giffery*  
Suzanne Aul Giffery

NOTARY PUBLIC STATE OF NEW YORK  
QUALIFIED IN STEUBEN COUNTY  
NO. 51-7078575

Commission expires March 30, 1974

*Herbert Leon MacDonell*  
Herbert Leon MacDonell

HERBERT LEON MACDONELL  
Post Office Box 1111  
Corning, New York 14830

TELEPHONE  
607-962-6581

#### TITLES

Professor of Criminalistics, Elmira College, Elmira, New York  
Director, Laboratory of Forensic Science, Corning, New York  
Consulting Criminalist  
Special Lecturer in Criminalistics, Corning Community College, Corning, N.Y.  
Deputy Sheriff, Steuben County, New York and Chemung County, New York  
President, MacDonell Associates Incorporated.

#### EDUCATION

B.A., Chemistry, Alfred University, Alfred, New York, 1950  
M.S., Chemistry, University of Rhode Island, Kingston, Rhode Island, 1956  
Additional Study in Criminalistics, University of Rhode Island  
Additional Study in Criminology, Elmira College, Elmira, New York  
Additional Study in Police Science, Pennsylvania State Police  
Additional Study in Police Science, New York State Municipal Police  
Training Council

#### EXPERIENCE

Professor and Chemistry Department Head, Milton College, Milton,  
Wisconsin, 1951-1954  
Forensic Scientist, Rhode Island State Crime Laboratory, Kingston,  
Rhode Island, 1954-1956  
Analytical Research Chemist, DuPont Marshall Laboratory, Philadelphia,  
Pennsylvania, 1956-1957  
Analytical Research Chemist, Corning Glass Works, Corning, New York,  
1957-1972  
Consulting Criminalist, since 1958  
Instructor in Police Science, Corning Community College, Corning, New York,  
1960-1967, 1972-  
Professor of Criminalistics, Elmira College, Elmira, New York, since 1972

#### PATENTS

3,114,692 - Chromatographic Separation Process  
3,132,036 - MAGNA Brush Fingerprint Development Method  
3,219,469 - Iodine-Porous Glass Fingerprint Development Method  
3,340,171 - Method for Electrophoretic Separation

#### CASES INVESTIGATED

Prosecution  
Private  
Defense

Security  
Insurance

HERBERT LEON MACDONELL

2

MEMBERSHIPS

American Association for the Advancement of Science  
American Academy of Forensic Sciences (Fellow) (Past Chairman, Criminalistics  
Section) (Past Secretary, Criminalistics Section)  
American Chemical Society (Past Chairman, Symposium on Forensic Chemistry)  
Canadian Society of Forensic Science  
International Association for Identification (Chairman, Science and  
Practice Committee) (Member, Standardization Committee on Friction Ridge  
Identification)  
Police-Law Society (Fellow) (Past President) (Past Secretary)  
Sigma Xi  
The Forensic Science Society (London, England)

PUBLICATIONS HAVE APPEARED IN:

American Trial Lawyers Association Proceedings  
Analytical Chemistry  
Finger Print and Identification Magazine  
Identification News  
Journal of Criminal Law, Criminology, and Police Science  
Journal of Gas Chromatography  
Journal of Forensic Sciences  
Law and Order  
Law Enforcement Science and Technology, vol. 11  
Legal Medicine Annual  
Nature  
New York State Bureau of Criminal Investigation Bulletin  
Police  
Proceedings of the Canadian Society of Forensic Science  
Scanning Electron Microscopy  
United States Department of Justice (LEAA) Publication

EXPERT TESTIMONY HAS BEEN GIVEN ON:

|                              |                                      |
|------------------------------|--------------------------------------|
| Blood Alcohol & Breathalyzer | Photography                          |
| Chemistry                    | Questioned Documents                 |
| Fingerprint Identification   | (excluding handwriting)              |
| Firearms Identification      | Spatial Distribution of Blood Stains |
| Microscopy                   |                                      |

1 that the homicide officers coming into this  
2 area of the bathroom, inspecting the bath-  
3 tub here (indicating), found marks in the  
4 bottom of the tub consistent with shoe or  
5 scuff marks.

6 The window, which is in line, as I  
7 will indicate here, this is the window that's  
8 reflected here with the Lorraine Motel  
9 (indicating), was open. At the bottom, from  
10 the bottom, the screen was pushed off and  
11 was found down in this area here  
12 (indicating).

13 The sill of this window in the bath-  
14 room was observed by Insp. Zachary to have  
15 what appeared to be a fresh indentation  
16 in it. This sill was ordered removed, was  
17 out away, was subsequently sent to the  
18 P.B.I. for comparison, and the proof would  
19 show through expert testimony that the  
20 markings on this sill were consistent with  
21 the machine markings as reflected on the  
22 barrel of the 30.06 rifle which has here-  
23 tofore been introduced to you gentlemen.

24 In an effort to identify any and all

1 Haines and found a thumb print identical  
2 with the left thumb print of James Earl  
3 Ray.

4 Mr. Robert A. Frazier, the chief,  
5 firearms identification unit at the F.B.I.,  
6 with 27 years experience, would testify  
7 as to examination and firing of this rifle,  
8 30.06, that has been heretofore introduced.

9 He examined the cartridges, the hull  
10 from the chamber of this rifle, the slug  
11 removed from the body of Dr. Martin Luther  
12 King, Jr., and would testify as to his con-  
13 clusions as follows:

14 The death slug was identical in all  
15 physical characteristics with the five  
16 loaded 30.06 Springfield cartridges found  
17 in the bag in front of Canipe's. The cart-  
18 ridge case had in fact been fired in this  
19 30.06 rifle. That the death slug removed  
20 from the body contained land and groove  
21 impressions and direction of twist con-  
22 sistent with those that were in the barrel  
23 of this rifle.

24 That he also made microscopic

1 comparison between the fresh dent in the  
2 sill of the window at the bathroom, 422 1/2  
3 South Main, and concluded that the micro-  
4 scopic evidence in this dent was consistent  
5 in all ways with the same microscopic  
6 marks as appear on the barrel of this rifle,  
7 30.06 rifle.

8 That his examination of the 243 caliber  
9 Winchester rifle, which had been purchased  
10 on March the 29th and returned on March the  
11 30th, was not capable of chambering or fir-  
12 ing a slug. There were certain deposits  
13 on the end of the bolt which had to be  
14 chiseled away before this gun was capable  
15 of being fired. That is the gun that was  
16 returned.

17 Morris S. Clark would be called as  
18 another expert from the F.B.I., with ref-  
19 erence to hair and fiber examinations, and  
20 he prepared microscopic slides from this  
21 green spread. He also made examinations  
22 of the pillow that was removed from 5-B,  
23 the bed clothing removed from 5-B, and he  
24 found fibers of the same type as is on this